IN THE CLAIMS

1   1.   (Original) A computer-implemented method for monitoring variations in the

2   film build thickness of workpieces on which a film build process has been performed,

3   comprising the steps of:

4   measuring the film build thickness of a group of workpieces, the

5   group comprising at least two subgroups of workpieces, each subgroup including at

6   least two workpieces;

7   calculating the range of the film build thickness measurements of

8   each subgroup, each range comprising the difference between the greatest thickness

9   measurement and the least thickness measurement of the subgroup;

10   selecting data from at least two of said subgroups having the

11   smallest of the calculated ranges; and

12   monitoring variations of the film build thickness of subsequent

13   workpieces coated in the film build by processing the data from the selected subgroups.

1   2.   (Canceled)

1   3.   (Canceled)

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1   4.   (Canceled)

1   5.   (Canceled)

1   6.   (Canceled)

1   7.   (Canceled)

1   8.   (Canceled)

1   9.   (Canceled)

1   10.   (Canceled)

1   11.   (Canceled)

1   12.   (Canceled)

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1   13.   (Canceled)

1   14.   (Previously Added)   A computer-implemented method for

2   monitoring variations in the film build thickness of workpieces on which a film

3   build process has been performed, comprising the steps of:

4   measuring the film build thickness of a group of workpieces,

5   the group comprising at least two subgroups of workpieces, each subgroup

6   including at least two workpieces;

7   calculating the range of the film build thickness

8   measurements of each subgroup, each range comprising the difference between

9   the greatest thickness measurement and the least thickness measurement of the

10   subgroup;

11   selecting data from at least two of said subgroups having the

12   smallest of the calculated ranges;

13   monitoring variations of the film build thickness of

14   subsequent workpieces coated in the film build by processing the data from the

15   selected subgroups; and

16   including the step of calculating C_{pk} based on the ranges of

17   the selected subgroups.

1   15.   (Previously Added) A computer-implemented method for monitoring

2   variations in the film build thickness of workpieces, based on process capability

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3 analysis on which a film build process has been performed, comprising the steps

4 of:

5 measuring the film build thickness of a group of workpieces,

6 the group comprising at least two subgroups of workpieces, each subgroup

7 including at least two workpieces;

8 calculating the range of the film build thickness

9 measurements of each subgroup, each range comprising the difference between

10 the greatest thickness measurement and the least thickness measurement of the

11 subgroup;

12 selecting data from at least two of said subgroups having the

13 smallest of the calculated ranges; and

14 monitoring variations of the film build thickness of

15 subsequent workpieces coated in the film build by processing the data from the

16 selected subgroups; and

17 including the steps of calculating the difference in C_{pk} for the

18 new process control limits and the existing process control limits, and then

19 calculating the change in film build material usage from said difference in C_{pk}.

1 16. (Previously Added and Currently Amended) A method for

2 monitoring the film build thickness of workpieces on which a first film build

3 process has been performed, comprising the steps of:

4 calculating a first C_{pk} of [the] workpieces on which [the] a first

5 film build process has been performed;

6   acquiring data relating to parameters of a second film build

7   process in which at least one of the parameters of the first film build process has

8   been changed;

9   calculating a second C_{pk} of the second film build process

10   from said acquired data; and

11   calculating the difference between the first C_{pk} and the

12   second C_{pk} to ascertain the relationship between said difference and the

13   changed parameter.

1   17.   (Previously Added) A method as defined in claim 16, including the

2   step of acquiring cost data relating to said first film build process and cost data

3   relating to said second film build process; and

4   generating a cost difference utilizing the first film build

5   process and the second film build process utilizing the first C_{pk} and the second

6   C_{pk}.

1   18.   (Previously Added) A method as defined in claim 16, including the

2   step of calculating the C_{pk} of at least one of said film build processes from range

3   values of the film build thickness of the corresponding film build process.

1   19.   (Previously Added and Currently Amended) A method as defined

2   in claim 16, including the step of acquiring selected coating millages relating to

3   said first film build process and selected coated millages relating to said second

4   film build process; and

5   generating a cost difference between the first film build

6   process and the second film <u>build</u> process utilizing the first Cpk and the second

7   Cpk to ascertain the mean shift in Film Build millages.

1   20.   (Previously Added and Currently Amended) A method as defined

2   in claim 16, including the step of acquiring target range values relating to said

3   first film build process and target range values relating <u>to</u> said second film build

4   process; and

5   generating a cost difference between the first film build

6   process and the second film <u>build</u> process utilizing the first C_{pk} and the second

7   $C_{pk.}$

1   21.   (Previously Added) A method as defined in claim 16, including the

2   step of acquiring data of the cost difference between the first and the second film

3   build processes in which both of said film build processes have the same film

4   thickness averages but with a different C_{pk} for the first and the second film build

5   processes.

1   22.   (Previously Added and Currently Amended) A method as defined in

2   claim 16, including the step of acquiring data of the first film <u>build</u> process

3   including Coating Minimum Specifications, Actual Film Thickness Average,

4 Actual Film Thickness Range, the C_{pk} of the first film process, and a subgroup

5 size.

1 23. (Previously Added and Currently Amended) A method as defined in

2 claim 16, including the step of acquiring data regarding film build usage, of the

3 first film build process and film build usage data of the second film build process,

4 and in which the changed parameter is the film build material usage of said first

5 film process, and then calculating the difference in film build material usage from

6 the difference in the first C_{pk} value and the second C_{pk} value.

1 24. (Previously Added and Currently Amended) A method as defined in

2 claim 16, in which the changed parameter is the process control limits of the

3 second film build process and then calculating the change in film build material

4 usage from the difference in the first C_{pk} value and the second C_{pk} value.

1 25. (Previously Added) A method as defined in claim 22, including the

2 step of selecting target range values for the first film process and the second film

3 process, and then calculating the differences in the film build material usage from

4 the difference between the first C_{pk} value and the second value C_{pk}.

1 26. (Previously Added and Currently Amended) A method as defined in

2 claim 16, including the step of acquiring data of the film build material usage of

3 the first film build process, then selecting coating millages for at least one of said

4   film build processes, and then calculating the change in film build material usage

5   from the difference between said first C_{pk} value and the second C_{pk} value.

1   27.   (Previously Added and Currently Amended) A method as defined in

2   claim 16, including the step of acquiring data regarding the material usage values

3   of the first film build process and the film usage of the second film build process

4   based on using the same film thickness with different variability for the first and

5   the second film build processes and then calculating the change in film build

6   usage from the difference between said first C_{pk} value and the second C_{pk} value.

1   28.   (Previously Added and Currently Amended) A method as defined in

2   claim 16, including the step of calculating the optimal variability of the first film

3   build process by adjusting the film millage average thereof, using said first $C_{pk,}$

4   and in which optimal variability is defined as the lowest standard deviation in a

5   run of seven or more units in the film build process.

1   29.   (Previously Added and Currently Amended) A method as defined in

2   claim 16, including the step of calculating the optimal variability of said first film

3   build process by adjusting the film millage costs thereof utilizing said first C_{pk} and

4   in which optimal variability is defined as the lowest standard deviation in a run of

5   seven or more units in the build process.

1   30.   (Previously Added and Currently Amended) A method as defined in

2   claim 16, including the step of adjusting the variability of the first film <u>build</u>

3   process to optimize the film millage average.

1   31.   (Previously Added and Currently Amended) Apparatus for

2   monitoring the film build thickness of workpieces on which a first film build

3   process has been performed, comprising:

4   computer-implemented means for calculating a first C_{pk} of

5   the workpieces on which the first film build process has been performed;

6   means for acquiring data relating to parameters of a second

7   film build process in which at least one of the parameters <u>thereof</u> has been

8   changed;

9   computer-implemented means for calculating a second C_{pk}

10   of the second film build process; and

11   computer-implemented means for calculating the difference

12   between the first C_{pk} and the second C_{pk} to develop a relationship between said

13   difference and the changed parameter.